REMARKS

Claim 17 has been amended, as set forth above, for the purpose of clarifying what applicants regard as their invention. Claim 17 has been amended to include the features of Claim 21. Claim 21 has therefore been cancelled without prejudice. Claim 23, which depended from Claim 21 and which, in light of the amendment to Claim 17, is now redundant with Claim 22, has also been cancelled. Claim 27, which formerly depended from Claim 23 (now cancelled), has been amended to depend from Claim 22.

New Claims 28 - 34 have been added. Independent Claim 28 incorporates the features of original Claims 17 and 22. Claims 29 - 34, which depend from Claim 28, incorporate various features of the original claim set.

The amendments to the claims and the new claims set forth above are fully supported by the originally filed specification, claim set, and drawings, and no new matter has been added to the application as a result of the claim amendments and new claims set forth above.

Applicants believe that the claims as amended are in condition for allowance, and the Examiner is respectfully requested to enter the requested amendments and to pass the application to allowance. The Examiner is invited to contact applicants' attorney with any questions or suggestions, at the telephone number provided below.

Respectfully submitted,

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PRELIMINARY AMENDMENT "A"
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 21 and 23 have been cancelled without prejudice.

Claims 17 and 27 have been amended as follows.

17. (Once Amended) A method of creating an aluminum oxide protective film on the surface of a high purity aluminum alloy, comprising: providing an aluminum alloy, wherein mobile impurity particulates present in said aluminum alloy are limited so that at least 95 % of all particles have a particle size of less than 5 μm, no more than 5 % of said particles have a particle size ranging between 20 μm and 5μm, and no more than 0.2 % of said particles have a particle size ranging between 50 μm and 20 μm; and exposing said surface of said aluminum alloy to an electrolytic oxidation process during which said surface is immersed as an anode in an acid electrolyte, with a cathode comprised of an aluminum alloy, and wherein a DC current is applied, wherein said acid electrolyte is a water-based solution comprising 10 % to 20 % by weight sulfuric acid and about 0.5 % to 3.0 % by weight oxalic acid, wherein said protective film is created at a temperature ranging from about 5 °C to about 25 °C, and wherein an applied current density of said DC current ranges from 5 A/ft^2 to 36 A/ft^2.

27. (Once Amended) A method in accordance with Claim [23] 22, wherein, prior to creating said aluminum oxide protective film on said high purity aluminum alloy surface, said aluminum alloy is heat treated to relieve stress and increase hardness, wherein said heat treatment is carried out at a temperature of 330 °C or at a lower temperature.

New Claims 28 - 34 have been added as follows.

28. (New) A method of creating an aluminum oxide protective film on the surface of a high purity aluminum alloy, comprising: providing an aluminum alloy, wherein said alloy includes mobile impurities present at the following concentrations or at lower concentrations, magnesium at 4.0 weight %, silicon at 0.03 weight %, iron at 0.03 weight %, copper at 0.07 weight %, manganese at 0.015 weight %, zinc at 0.16 weight %, chromium at 0.07 weight %, titanium at 0.01 weight %, and wherein a total of other impurities present in said aluminum alloy ranges from 0 - 0.1 weight %, with individual other impurities limited to 0 - 0.03 weight % each; and exposing said surface of said aluminum alloy to an electrolytic oxidation process during which said surface is immersed as an anode in an acid electrolyte, with a cathode comprised of an aluminum alloy, and wherein a DC current is applied, wherein said acid electrolyte is a water-based solution comprising 10 % to 20 % by weight sulfuric acid and about 0.5 % to 3.0 % by weight oxalic acid, wherein said protective film is created at a temperature ranging from about 5 °C to about 25 °C, and wherein an applied current density of said DC current ranges from 5 A/ft^2 to 36 A/ft^2.

29. (New) A method according to Claim 28, wherein, prior to exposing said aluminum alloy surface to said electrolytic oxidation process, said surface is cleaned by contacting said surface with an acidic solution which includes about 60 % to 90 % by weight of technical grade phosphoric acid, having a specific gravity of about 1.7, and about 1% - 3 % by weight of nitric acid, wherein said cleaning is carried out with said aluminum alloy surface at a temperature in the range of about 100 °C, for a time period ranging from about 30 seconds to about 120 seconds.

30. (New) A method in accordance with Claim 29, wherein subsequent to said cleaning of said aluminum alloy surface and prior to said electrolytic oxidation process, said surface is rinsed with a deionized water rinse.

31. (New) A method in accordance with Claim 28, or Claim 29, or Claim 30, wherein said aluminum oxide protective film exhibits hexagonal cells having internal pores ranging in size from about 300 Å to about 750 Å in diameter.

32. (New) A method in accordance with Claim 28, or Claim 29, or Claim 30, wherein mobile impurity particulates present in said high purity aluminum alloy are limited so that at least 95 % of all particles have a particle size of less than 5 μm, no more than 5 % of said particles have a particle size ranging between 20 μm and 5 μm, and no more than 0.2 % of said particles have a particle size ranging between 50 μm and 20 μm.

33. (New) A method in accordance with Claim 28, or Claim 29, or Claim 30, wherein, prior to creating said aluminum oxide protective film on said high purity aluminum alloy surface, said aluminum alloy is heat treated to relieve stress and increase hardness, wherein said heat treatment is carried out at a temperature of 330 °C or at a lower temperature.

34. (New) A method in accordance with Claim 32, wherein, prior to creating said aluminum oxide protective film on said high purity aluminum alloy surface, said aluminum alloy is heat treated to relieve stress and increase hardness, wherein said heat treatment is carried out at a temperature of 330 °C or at a lower temperature.